

REMARKS

Claims 1-7, 12, 14-23, 35-39, 41, 43 and 44 are currently pending in this application. Claims 1 and 15 have been amended. Support for the language “substituting the OR³-group with a purine base,” in claim 15 can be found in original claim 15. No new matter has been added. In view of these amendments and of the following remarks, Applicants believe that all the rejections are in condition for withdrawal and all the claims are in condition for allowance.

Claim Objection

Claims 1-7, 12, 14-23, 35-39, 41 and 43-45 are objected to as having non-elected subject matter present. The Examiner indicates that limiting the claims to “adenines” will resolve this matter.

Applicants respectfully submit, as previously made of record, that the single technical inventive feature that links all of the claims is an unsaturated cyclohexenyl moiety, and not a nucleobase or nucleobase analogue (referred to as “B”) asserted by the Examiner. In particular, the unsaturated cyclohexenyl moiety is critical for providing the antiviral activity of the claimed compounds because the specific biological activity of the claimed compounds is due to the sugar analogue portion of the cyclohexenyl moiety and not from the use of a nucleobase or nucleobase analogue. In this regard, comparison can be made to other antiviral compounds, such as 3'-azido-3'-deoxythymidine (AZT) and 3'-thai-2',3'-dideoxycytidine (3-TC), which all are nucleobase analogues with modifications in the sugar portion of the compound, similar to the compounds of the claimed invention. Furthermore, AZT and 3-TC also have the same nucleobases as the claimed invention but differ from the claimed invention with regard to their respective sugar moieties.

Moreover, Applicants have and hereby again stipulate that the related species to which the Examiner has issued a restriction requirement, namely, the nucleobase or nucleobase analogues, are not patentable over one another, and point out that such a “clear and unambiguous admission that the inventions are not patentable over each other” is sufficient to withdraw the restriction requirement issued by the Examiner. In re Lee, 199 U.S.P.Q. 108, 109 (Comm’r Pats. 1978). Finally, if the restriction to a single species is maintained, Applicants point out that at such time that a generic claim is allowed, Applicants will be entitled to examination of a reasonable number of additional species, and thus amending the claims to only recite one species would foreclose this further examination. Based on the foregoing, Applicants respectfully request that the objection to and restriction requirement of claims 1-7, 12, 14-23, 35-39, 41 and 43-45 be withdrawn.

35 U.S.C. § 102 Rejection

Claims 1-7, 10, 12, 14-23, 35-39, 41 and 43-45 stand rejected under 35 U.S.C. § 102(a) for asserted anticipation by Wang (2000) or Wang (1999) for the reasons previously made of record.

Applicants respectfully traverse this rejection and request that the rejection be reconsidered and withdrawn for the following reasons.

Applicants point out that the provisional applications and the above-cited Wang publications disclose the same subject matter. Thus, for the subject matter described in the provisional applications, as well as the publications, the present application is entitled to claim priority. Applicants disagree that because claim 1 is a broad claim, the subject matter described in the publication is novelty destroying for claim 1. This is because claim 1 is recited in the instant application, which is entitled to claim priority to the provisional applications in so far as claim 1 recites the subject matter disclosed in the provisional

applications (i.e., guanine and adenine derivatives). Therefore, because the publications and the provisional applications cover the same subject matter (i.e., guanine and adenine derivatives), the publications are not novelty destroying. Although an argument could be made for derivatives other than guanine and adenine, it cannot be made for these two derivatives.

Applicants provide the following simple analogous example to illustrate the above contention that the two cited publications are not anticipatory of the claimed invention: A provisional application discloses the use of copper and a subsequent publication also discloses the use of copper. An application claiming priority to the provisional application contains claim 1 directed to the use of a metal. The publication disclosing copper cannot be considered anticipatory because the subject matter of copper in the application, which falls within the scope of claim 1, is entitled to claim priority to the provisional application. Although one could argue that the use of other metals, e.g., iron or zinc, would be obvious to one skilled in the art, this argument cannot be made for the use of copper. Based on this reasoning, Applicants respectfully request reconsideration and withdrawal of this rejection.

35 U.S.C. § 112 Rejections

Claims 1-7, 12, 15-23, 35-39, 41, 43 and 44 stand rejected under 35 U.S.C. § 112, second paragraph, for asserted indefiniteness. In the Office Action, the Examiner makes the following assertions and/or asks the following questions with respect to the following claims:

(1) In claim 15, what is being reacted with XII?

Claim 15 has been amended to recite that the process comprises i) providing a compound XII and ii) substituting the OR³-group with a pyrimidine or purine base. Thus, the

claimed process is directed to substituting a moiety with a base in compound XII and not reacting XII with anything.

(2) In claims 41 and 43, what does “related viruses” refer to?

Applicants point out that the term “related viruses” includes all viruses that are related to the identified virus, as one skilled in the art would know and which easily can be ascertained from various handbooks, such as the commonly used handbook entitled “Human Virology,” Oxford University Press (ISBN:0192628208).

(3) The multiple ranges for alkyl are of unknown purpose.

Claim 1 has been amended to recite that “the alkyl moiety is a saturated, substituted or unsubstituted straight or branched chain hydrocarbon radical having from 1 to 20 carbon atoms...”. Thus, this ground of the rejection is believed to be obviated.

(4) The “wherein R¹ and R² is a protecting group” does not make sense.

Claim 15 has been amended to recite that “R¹ and R² are combined to form a protecting group or are each protecting groups,” as it is Applicants’ intention to leave both possibilities open, i.e, wherein R¹ and R² are combined to form a protecting group or are separately selected as a protecting group.

(5) The protecting group has to be monovalent because it is attached to a divalent oxygen group.

Claim 1 has been amended to recite wherein R¹ and R² can be “combined to form a protecting group or are each a protecting group,” thus obviating this ground of the rejection.

(6) What would an analogue cover in claim 19?

Applicants point out the benzaldehyde analogue has to be reacted with the diol of formula XIV. Applicants submit that one skilled in the art would know which

benzaldehyde analogue can be used for this purpose and that benzaldehyde dialkylacetal could be used in a transacetylation reaction.

(7) Does Me in claim 20 stand for metal or methyl?

Applicants submit that it would be clear to one skilled in the art that "Me" refers to methyl, based on the context of the recitation of claim 20. Further, on page 32 of the specification, the preparation of 4-hydroxymethyl-cyclohex-2-en,5-diol (compound 7a) is described using the same compound as claimed in claim 20. Thus, it is clear that the term "Me" refers to methyl because if "Me" referred to metal, one skilled in the art would not obtain compound 7a. Moreover, the term "EtOOC" also is used, wherein "Et" is clearly ethyl. Therefore, a person skilled in the art would understand that in this context "Me" refers to methyl.

Claim 20 stands rejected under 35 U.S.C. § 112, paragraphs 1 and 2, for asserted lack of enablement and indefiniteness. The Examiner asserts that the reaction recited in claim 20 is impossible, and that it is either written incorrectly or not enabled.

Contrary to the Examiner's assertion, Applicants respectfully submit that the process is not impossible and point out that the reaction is described clearly at page 32 of the specification (reaction compounds 5 through 7).

Claims 15-17 and 20-23 stand rejected under 35 U.S.C. § 112, first paragraph, for asserted lack of written description. The Examiner asserts that the specification does not teach the generic concept of a combined protecting group which protects two oxygens simultaneously.

Applicants respectfully disagree with the Examiner's assertions. Applicants point out that the formation of the ketal of compound 7a clearly is shown at page 34, lines 9-14. Moreover, Applicants submit that one skilled in the art would be able, based on the teaching provided at page 34, to extrapolate this teaching to understand the generic concept of having a protecting group which protects two oxygens simultaneously. Applicants, therefore, respectfully request reconsideration and withdrawal of this rejection.

Claim 41 stands rejected under 35 U.S.C. § 112, first paragraph, for asserted lack of enablement. The Examiner asserts that, while the specification is enabling for herpes viruses, it is not enabling for pox viruses generally or related viruses.

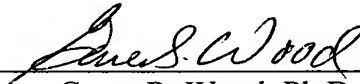
Applicants respectfully disagree that the specification lacks enablement for pox viruses and related viruses. Applicants submit that the new and unexpected finding of the claimed invention is that the administration of the compound of formula I, as claimed in claim 1, provides potent antiviral biological activity not only against herpes viruses, which the Examiner acknowledges is enabled by the specification, but also other viruses as well, such as pox viruses and related viruses. Additionally, as described above, the term "related viruses" includes all viruses that are related to the pox virus, as one skilled in the art would know and which easily can be ascertained from various handbooks, such as the commonly used handbook entitled "Human Virology," Oxford University Press (ISBN:0192628208).

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In view of the foregoing amendments and remarks, it is respectfully submitted that all pending claims 1-7, 12, 14-23, 35-39, 41, 43 and 44 in the present application comply with the requirements of Section 112 and are distinguishable from the cited prior art. Accordingly, reconsideration and withdrawal of the rejections and an early Notice of Allowance are respectfully requested.

Respectfully submitted,

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